

**MEMORANDUM**

**To:** Board of Regents

**From:** Board Office

**Subject:** Iowa State University's Proposal for an Interdepartmental Graduate Program in Sustainable Agriculture

**Date:** June 5, 2000

**Recommended Action:**

Refer the proposed Graduate Program in Sustainable Agriculture at Iowa State University to the Interinstitutional Committee on Educational Coordination (ICEC) and the Board Office for review and recommendation.

**Executive Summary:**

Iowa State University is requesting approval of a new interdepartmental program (M.S. and Ph.D.) in Sustainable Agriculture. The proposed graduate degree program in Sustainable Agriculture would be the first of its kind in the United States. The University also proposes to offer, as part of this program, a graduate minor in Sustainable Agriculture.

The specific goals of the Graduate Program in Sustainable Agriculture (GPSA) are to: (1) provide students with the analytical and problem-solving skills required to meet the challenges confronting agriculture in the 21<sup>st</sup> century; (2) develop an innovative approach to graduate education that is interdisciplinary and interdepartmental; and (3) position Iowa State University at the forefront of institutions conducting research and extending knowledge about sustainable agricultural systems.

While a large number and wide range of interdisciplinary environmental studies programs exist at the undergraduate and graduate levels in the United States and around the world, there are few graduate programs focused on environmental issues in agriculture. Some land grant institutions have sustainable agriculture research projects and offer training and education programs, but such programs are not degree-granting.

Graduates of the GPSA will have highly marketable skills for careers in university research, education, extension, agricultural industry, governmental and non-governmental organizations, and farming.

Costs for the program are estimated to be: Year 1: \$79,000; Year 2: \$129,000; and Year 3 and thereafter: \$197,000, plus inflation. The largest portion of each year's budget is for graduate assistantships (from three in Year 1, to six in Year 2, to 10 in Year 3 and thereafter). Each core course, except one, is taught one semester every other year. Faculty loads have been negotiated so that no instructional costs will be incurred. Some funding is provided for a secretary and guest speakers.

The GPSA is consistent with the strategic plan of Iowa State University to become the nation's premier land grant institution. The proposed interdepartmental program reflects the University's emphasis on research programs related to agriculture, natural and social sciences, engineering technology, and stewardship of the environment, part of Goal 2 of the ISU Strategic Plan.

The proposed program is consistent with the Board of Regents Strategic Plan, specifically Objective 1.1.0.0, Improve the quality of existing and newly created educational programs. The relevant Strategies and Action Steps include:

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| Strategy 1.1.2.0      | Strengthen the quality of graduate and professional education at Regent institutions within the unique mission of each institution. |
| • Action Step 1.1.2.2 | Focus graduate programs to conform to unique missions of each university.   |
| Strategy 1.1.4.0      | Strengthen research, creative work, and service by the Regent institutions.   |
| • Action Step 1.1.4.1 | Each university enhance its research efforts consistent with its mission.   |
| • Action Step 1.1.4.2 | Each university increase sponsored research consistent with its mission.  |
| • Action Step 1.1.4.3 | Each university increase its service to Iowans, nation, and world.  |

### **Background and Analysis:**

The intent of the proposed GPSA is to develop student competence and expertise in the design, implementation, and evaluation of sustainable agricultural systems. A key objective of the GPSA curriculum is to foster transdisciplinary and systemic thinking. A focus of the forthcoming review by the Board Office is to affirm that the intent and key objective are met.

Agriculture faces many pressing environmental, social, and agronomic challenges. There is growing recognition that an exclusive focus on increased production of food will be insufficient to meet the concerns of farmers and the non-farming public about food safety, nutritional security, environmental stewardship, and socially acceptable production technologies and food distribution systems. Sustainable agriculture offers a new cross-disciplinary approach in scholarship and service, providing students with a holistic perspective and concrete training. Typically, programs in agriculture are taught along traditional discipline or field boundaries.

To provide both the necessary information considered basic to the field as well as to establish a systems-oriented approach for studying agricultural sustainability, students in the proposed program would follow an interdisciplinary core curriculum comprised of five courses. They involve the subjects of agroecosystem analysis, integrated crop and livestock production systems, ecologically based pest management strategies, organizational strategies for diversified farming systems, and society and technology in sustainable food systems. M.S. students would be required to take three of the five courses; doctoral students would take all five. The five courses will be team-taught. All students and faculty of the program will be expected to participate in a weekly colloquium on sustainable agriculture. The proposed program would require M.S. students to take a minimum of six research or creative components hours and Ph.D. students to take 18 research credits.

The Board Office and ICEC will review a proposed graduate minor in Sustainable Agriculture, which will require completion of three of the five core courses and three semesters of the colloquium for a total of 12 credits.

The ISU departments involved in the GPSA include:

- Agricultural and Biosystems Engineering
- Agronomy
- Animal Science
- Anthropology
- Entomology
- Horticulture
- Plant Pathology
- Sociology

The program does not duplicate any others in the state. The evidence suggests that the particular emphasis of this program will be unique, even among land grant universities.

The University projects the following graduate enrollments:

	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005
Majors	8	20	30	35	35
Non-majors	4	12	15	20	20

The career paths available to graduates are likely to be in such fields as university research, education (both secondary schools and universities), and extension programs. The agricultural industry, government, and farming would also provide other opportunities.

The GPSA has some marginal expenditures associated with supplies, field trips, student recruitment, and support for the program's weekly colloquium. How such expenditures are covered is described in Attachment A, page 16.

There are eight courses which are proposed as either new courses or modified courses. The report does not make clear if there are costs associated with the development of these courses. Funding for graduate assistantships, described as a major expense of the program, will be sought from foundations and other private sources as well as governmental programs.

Attachment A, pages 5 to 17, provides the University's answers to the Regent review questions for new programs.

If approved by the Board, following the reviews of the ICEC and Board Office, and the Iowa Coordinating Council for Post High School Education, the program could begin as early as Fall 2000.

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Charles R. Kniker

Approved: \_\_\_\_\_  
Frank J. Stork